

REMARKS

Claims 1-23 are pending in this application, stand rejected, and are at issue herein. Reconsideration of claims 1-23 and indication of the allowability thereof in view of the following remarks are respectfully solicited.

The Examiner has rejected claim 2 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Specifically, the Examiner indicated that the language of claim 2 is unclear in that "claim 2 states that copying of information is a step of excluding information." With this statement and this ground of rejection the Applicants respectfully disagree. As such, the Applicants respectfully traverse this ground of rejection, and request reconsideration thereof.

The Examiner has indicated that claim 2 states that copying of information is a step of excluding information. However, an examination of claim 2 reveals that the step modified therein is the step of "excluding information from the TCB not required to identify the client connection to form a time-weight state TCB (TWTCB) for a time-weight." Claim 2 recites that this step of excluding comprises the step of "copying the information required to identify the client connection to form the TWTCB. That is, claim 2 requires that the step of excluding information from the TCB not required to identify the client connection comprises the step of copying the information that is required to identify the client connection. The Applicant respectfully submits that this recitation is clear and is in full compliance with 35 U.S.C. § 112. However, if the Examiner persists in this rejection of claim 2, the Applicants would appreciate any suggestion that the Examiner may have.

Additionally, the Examiner indicated that claim 2 does not specify from where the information is copied. However, proper antecedent basis for the phrase "the information" is maintained in claim 2, referring to the information introduced initially in independent claim 1. That is, independent claim 1 states that the TCB contains "information required to identify and to service the client connection." Because claim 2 refers to "the information required to identify the client connection", this information must come from the TCB introduced in claim 1. As such, the Applicants respectfully submit that claim 2 is fully compliant with 35 U.S.C. § 112 for this additional reason.

The Examiner has also rejected claim 17 under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which Applicants regard as their invention. This rejection is based on the Examiner's reading of claim 17 that "claim 17 claims that the information contained in the TWTCB does not contain sufficient information to identify the TCP/IP connection." With this statement and this ground of rejection the Applicants respectfully disagree. As such, the Applicants respectfully traverse this ground of rejection and respectfully request reconsideration thereof.

Contrary to the Examiner's position that claim 17 claims that the information contained in the TWTCB does not contain sufficient information to identify the TCP/IP connection, claim 17 actually requires "the portion of information being insufficient to service the TCP/IP connection." However, while claim 17 indicates that the portion of information is insufficient to service the TCP/IP connection, this is not to say that the portion of information is insufficient to identify the TCP/IP connection as stated by the Examiner. As indicated in independent claim 11 from which claim 17 depends, the TCB contains "information sufficient to identify and service the connection." Claim 17, however, merely indicates that the step of forming a TWTCB comprises the step of copying a portion of the information of the TCB, the portion of information being insufficient to service the TCP/IP connection" (emphasis added). Therefore, the Applicants respectfully submit that claim 17 is in compliance with 35 U.S.C. § 112 as currently written. The Examiner's restatement of what claim 17 is claiming, however, appears to be in error as it refers to identifying the TCP/IP connection whereas claim 17 actually refers to servicing the TCP/IP connection. Reconsideration of this ground of rejection and indication of the allowability of claim 17 at an early date are therefore respectfully solicited.

The Examiner has rejected claims 1-16 and 18-23 under 35 U.S.C. 103(a) as being unpatentable over Recio et al. (U.S. Patent No. 6,035,418) in view of Coile et al. (U.S. Patent No. 6,298,380). This ground of rejection is respectfully traversed. Reconsideration of claims 1-16 and 18-23 in view of the following remarks and indication of the allowability of these claims at an early date are respectfully solicited.

The Examiner has correctly indicated that Recio et al. '418 teaches that the resources associated with a connection (a TCB) are released upon the closing of a TCP/IP connection. Indeed, through the addition of a single-bit status flag and simple logics that set the status flag whenever a retransmission is detected and that checks the status flag at the closing of the connection, the system of Recio et al. '418 allows "all the resources associated with the connection" to be returned immediately to the system when the connection is closed. Recio et al.

'418, column 1, lines 62-66 (emphasis added). By releasing all of the resources associated with the connection, the system of Recio et al. '418 improves resource utilization "by reducing the number of connections in the TIME_WAIT state." *Id* at column 3, lines 1-3 (emphasis added).

If, however, the status flag is set at the time that the connection is to be closed, the TCB for the connection is linked to the TIME_WAIT queue. *Id* at lines 23-25. By keeping the entire TCB for the TIME_WAIT, the system of Recio et al. '418 avoids "any possible contamination from late arrival of delayed packets." *Id* at lines 35-40. However, if the status flag is not set, "the resources associated with the connection, such as TCBs, will be released immediately...in this case, all the resources associated with the enclosed connection can be reassigned immediately if needed." *Id* at lines 18-23.

In summary, the system of Recio et al. '418 teaches a system which utilizes a status flag to determine whether the entire TCB can be released, or whether the entire TCB needs to be maintained for the TIME_WAIT. If the status flag has not been set, all of the resources associated with the connection are immediately released to the system. If, however, the status flag is set, all the resources are maintained for the connection to avoid any possible contamination from the late arrival of delayed packets. In this way, "the number of connections" in the TIME_WAIT state may be reduced.

Despite the explicit teachings in Recio et al. '418 that "all of the resources" associated with the connection may be immediately released if the status flag has not been set, the Examiner proposes maintaining "a smaller connection object" once the connection has been terminated, citing Coile et al. '380. However, the Applicants respectfully submit that one skilled in the art would not look to the teachings of Coile et al. '380 that suggest maintaining a smaller connection object when Recio et al. '418 teaches a system by which all of the resources may immediately be released upon connection termination if the status flag is not set. That is, the Applicants are unclear as to why one skilled in the art would be motivated to maintain a connection object when the status flag clearly indicates that there is no reason to maintain any information for the connection as discussed in Recio et al. '418. Further, Recio '418 is concerned "with reducing the number of connections in the TIME_WAIT state." Recio et al. '418, column 3, lines 1-3 (emphasis added). As such, maintaining the connection object as suggested by the Examiner would not satisfy this requirement of reducing the number of connections in the TIME_WAIT state, but would merely reduce the size of those connections. However, Recio et al. '418 clearly teaches a system that improves resource utilization by reducing the number of connections in this

TIME_WAIT state, a purpose which would be thwarted by the Examiner's proposed combination.

Additionally, the system of Coile et al. '380 is directed to a method and apparatus for reducing overhead on a proxied connection. That is, Coile et al. '380 discusses resource allocation within a proxy sitting between a server and a client. This connection is completely foreign to the teachings of Recio et al. '418. Still further, the connection object to which the Examiner refers in Coile et al. '380 is maintained so that the proxy is not required to terminate connections to the client or the server. That is, while Recio et al. '418 is concerned with freeing resources at the termination of a connection, the connection object of Coile et al. '380 is utilized within a proxy to allow it to preserve the proxy's ability to sequence and check packets without requiring the proxy to terminate connections to the client or the server.

In other words, Coile et al. '380 does not deal with resource allocation or relinquishment at the termination or the closing of a TCP/IP connection whatsoever. Instead, Coile et al. '380 describes that the smaller connection object may be utilized once the proxy has determined that the connection between the server and the client no longer needs to be proxied. At this point, the proxy routes the packets through a non-participating application that performs stateful inspection of the packets sent between the client and server. The smaller connection object is then maintained so that the proxy's non-participating application may simply adjust the sequence and acknowledgement bit numbers from the client and the server using the sequence synchronization factors contained in the smaller connection object. Coile et al. '380, column 14, lines 8-37. As is made clear in Coile et al. '380, the smaller connection object does not have anything to do with a terminated TCP/IP connection, but is instead utilized so that the cut through proxy need not terminate the connection to the client or the server. This requirement is completely foreign to the system of Recio et al. '418 which deals with the freeing of resources in the TCB once the TCP/IP connection is terminated. As such, the Applicants respectfully submit that one skilled in the art would not look to utilize the smaller connection object of Coile et al. '380 since this connection object is not taught as being useful once a TCP/IP action has been closed, but instead is used by a cut through proxy to maintain connections to the client or the server.

Further, independent claim 1 requires the step of excluding information from the TCP not required to identify the client connection to form the TWTCB. However, the connection object of Coile includes not only the client and server IP address and port numbers that identifies the unproxied connection, but also "the sequence synchronization factors Δ_1 and Δ_2 ." However, these sequence synchronization factors Δ_1 and Δ_2 are not required to identify the client

connection, but are used by the proxied non-participating application to adjust the sequence and acknowledgment bit numbers from the client and server. Coile et al. '380, column 14, lines 4-7; lines 34-37. As such, even if the Examiner's proposed combination could be supported, the connection object of Coile et al. '380 actually contains additional information than that required to identify the client connection, and therefore does not meet the limitation of independent claim 1 of excluding information not required to identify the client connection.

With regard to the Examiner's statement for the motivation to combine these two references, to wit "to have less memory overhead during data transfer," the Applicants respectfully submit that his statement would not motivate one of ordinary skill in the art to make the proposed combination of references as suggested by the Examiner. Specifically, the system of Recio et al. '418 teaches that the number of connections in the TIME_WAIT state may be reduced once a connection has been terminated by checking the status flag to see whether or not any retransmissions have been detected during the connection. That is, Recio et al. does not deal at all with the amount of memory overhead required "during data transfer" as suggested by the Examiner, but is directed specifically at the release of resources upon termination of a connection. However, Coile et al. '380 does utilize the connection object specifically for the purpose of allowing a cut through proxy to sequence and check packets sent between a client and server "without requiring the cut through proxy to terminate connections to the client or the server." In other words, Coile et al. '380 does deal with the amount of memory overhead during data transfer, a concept completely foreign to Recio et al. '418.

As this proposed combination of references is viewed vis-à-vis the claims of the instant application, it is noted that these claims deal with the closing of a TCP/IP connection, and not the amount of memory overhead required "during data transfer" as suggested by the Examiner. Therefore, Applicants respectfully submit that this statement of suggestion or motivation to support the proposed combination is improper. Specifically, Recio et al. '418 discusses system operation at the termination of a TCP/IP connection, while Coile et al. '380 provides a mechanism by which the cut through proxy is not required to terminate the connection with the client or server. These are mutually exclusive operations that cannot support a proposed combination as suggested by the Examiner. More specifically, since Recio et al. '418 and Coile et al. '380 deal with completely different problems, the Applicants respectfully submit that one of ordinary skill in the art would not be motivated to combine their teachings.

With regard to claims 5, 6, 15, 16, 22, and 23, the Applicants respectfully submit that neither Recio et al. '418 nor Coile et al. '380 teach, alone or in combination, the structure

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required by these claims. Further, neither of these references taken alone or in combination teach any structure, except that Coile et al. '380 teaches that the connection object must contain the client and server IP addresses and port numbers as well as the sequence synchronization factors Δ_1 and Δ_2 . This clearly does not teach the required structure of these claims nor provides any suggestion for the details contained therein.

In view of the above, the Applicants respectfully submit that claims 1-23 are in condition for allowance. Reconsideration of claims 1-23 and indication of the allowability thereof at an early date in view of the preceding remarks are respectfully solicited.

If the Examiner believes that a telephonic conversation will aid in the resolution of any issues not resolved herein, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

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